

Iatrogenic Bleb Formation and Hypotony Maculopathy Following Pterygium Surgery with Mitomycin-C

Saeed Shokouhi-Rad¹, MD; Reza Alizadeh^{1,2}, MD; Ramin Daneshvar¹, MD

¹Eye Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

²Glaucoma Division, Jules Stein Eye Institute, Doris Stein Eye Research Center, CA, USA

Abstract

Purpose: To report a case of late iatrogenic bleb formation and hypotony maculopathy after pterygium surgery applying Mitomycin C (MMC).

Case Report: A 66-year-old man presented with an elevated, bleb-like, fluid-filled, cystic lesion on the nasal sclera of the right eye. The patient had undergone pterygium surgery with a combination of conjunctival autograft and adjuvant intraoperative MMC 0.02% four years before. The sclera seemed fistulized at the site of surgery and a thin layer of conjunctiva completely covered the lesion. A scleral patch graft was secured over the fistula with sutures, followed by excision of the thinned, avascular conjunctiva and advancement of the healthy adjacent conjunctiva to cover the patch graft. One month later, a small bleb re-appeared adjacent to the scleral patch graft and IOP was 2 mmHg. Argon-laser treatment of the bleb was tried to induce scarring and reduction of bleb size, and was highly effective. After one week, IOP was increased to 8 mmHg. The clinical features remained stable four months after initial presentation.

Conclusion: Pterygium surgery using adjuvant MMC may result in late iatrogenic bleb formation and hypotony maculopathy. This complication can be successfully corrected surgically using a scleral patch graft combined with argon laser treatment over the inadvertent bleb.

Keywords: Iatrogenic Bleb Formation; Hypotony Maculopathy; Pterygium Surgery

J Ophthalmic Vis Res 2015; 10 (3): 345-347.

INTRODUCTION

In this interventional case report, we describe a unique case of iatrogenic bleb formation following pterygium surgery with adjunctive intraoperative Mitomycin C (MMC). To our knowledge this is the first report of late iatrogenic bleb formation with hypotony maculopathy after pterygium surgery in the literature.

Correspondence to:

Reza Alizadeh, MD. Glaucoma Division, Jules Stein Eye Institute, Doris Stein Eye Research Center, 200 Stein Plaza, Los Angeles, CA 90095-7000, USA.
E-mail: alizadehr881@mums.ac.ir

Received: 10-07-2013

Accepted: 20-05-2014

CASE REPORT

A 66-year-old Turkmen man was referred due to gradual and painless decreased vision following an initially uncomplicated course of recovery after pterygium surgery 4 years before, at another center. According to the surgical records, pterygium removal was performed using a combination of conjunctival autograft and adjuvant intraoperative MMC 0.02%. The patient was in good general health with no remarkable medical or ocular history, except for pterygium surgery.

On examination, uncorrected distance visual acuity (UCDVA) were 1.5 and 0.8 LogMAR (20/630 and 20/125,

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Shokouhi-Rad S, Alizadeh R, Daneshvar R. Iatrogenic bleb formation and hypotony maculopathy following pterygium surgery with Mitomycin-C. *J Ophthalmic Vis Res* 2015;10:345-7.

Access this article online

Quick Response Code:



Website:
www.jovr.org

DOI:
10.4103/2008-322X.170341

Snellen acuity) in the right and left eyes, respectively. With a refraction of +6.00-0.75 @ 130° and -1.50-0.75 @ 135°, best spectacle corrected distance visual acuity was 0.5 and 0.2 LogMAR (20/63 and 20/32, Snellen acuity) in the right and left eyes, respectively. There was no afferent pupillary defect, nor pupillary abnormality. Slit lamp biomicroscopy of the left eye was unremarkable, while in the right eye, an elevated, bleb-like, fluid-filled,

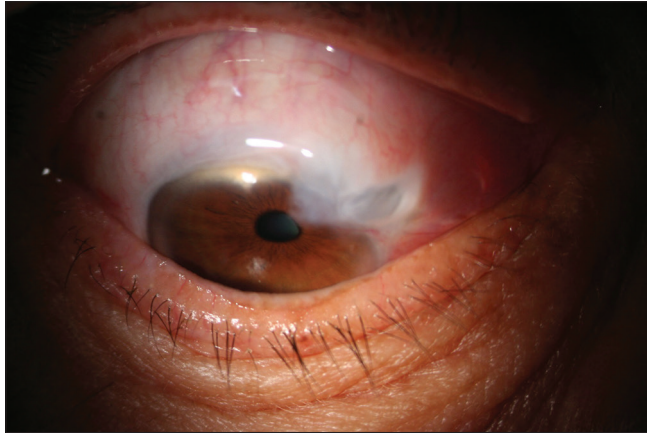


Figure 1. Slit lamp photography at presentation. There is a bleb like elevation, filled with fluid on the nasal side, at the site of previous pterygium surgery.

cystic lesion was noticeable in the nasal sclera (over the presumed site of previous surgery). The sclera seemed fistulized at the surgical site (approximately for 1 × 1 mm²) and a thin layer of conjunctiva completely covered the lesion [Figure 1]. Seidel’s test was negative. The anterior chamber had normal depth comparable to the opposite side and was quiet. There was neither a significant cataract nor synechiae. Goldmann appplanation tonometry readings were 6 and 10 mmHg in the right and left eyes, respectively. On dilated fundus examination at the slit lamp, the optic disc had no significant cupping in either eye; however, in the right eye the disc margin was slightly blurred and marked choroidal folds were present in the macular region [Figure 2]. Optical coherence tomography (OCT) further documented the clinical findings [Figure 3].

With a diagnosis of iatrogenic bleb formation, complicated by hypotony maculopathy, surgical closure of the fistula was planned. A precisely sized, donor scleral patch graft was secured water-tightly over the fistula with multiple 10-0 nylon sutures, followed by excision of the thinned avascular conjunctiva and advancement of the healthy adjacent conjunctiva to cover the patch graft. One day following surgery, the graft was in good condition [Figure 4], intraocular pressure (IOP) was 16 mmHg, and UCDVA was improved to 0.5 Log MAR (20/63

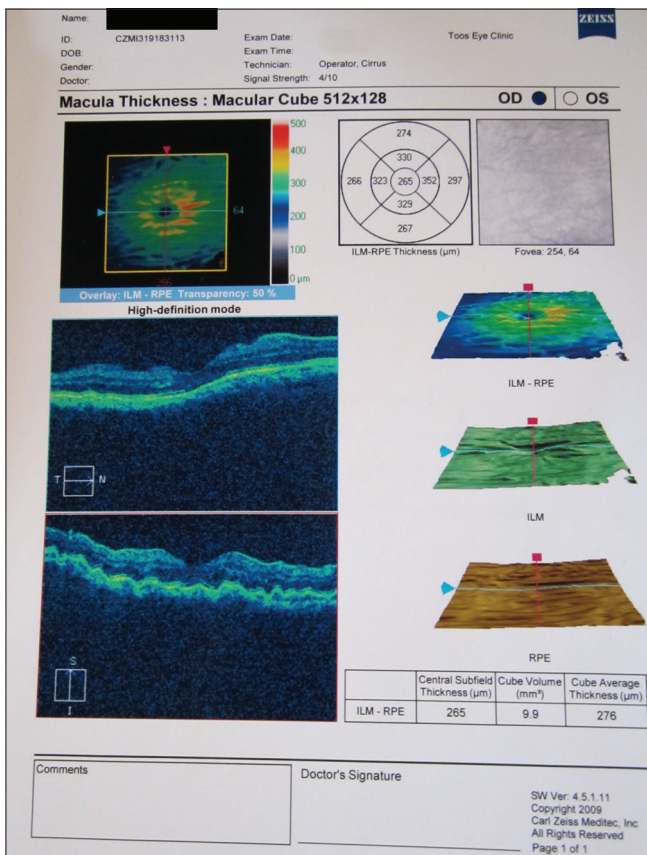


Figure 3. Optical coherence tomography image at presentation shows retinal folds and macular edema due to hypotony.

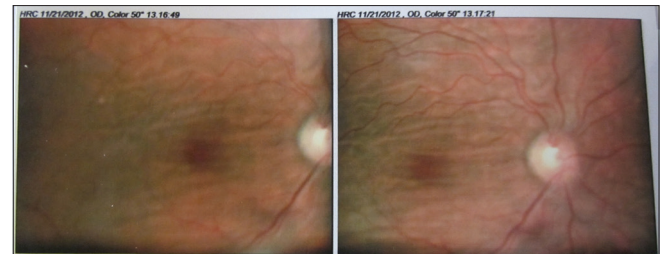


Figure 2. Fundus photograph at presentation, note the choroidal folds and macular folds due to hypotony.



Figure 4. Slit lamp photograph, one day after scleral patch grafting. The donor sclera’s white hue is visible beyond the advanced conjunctiva.

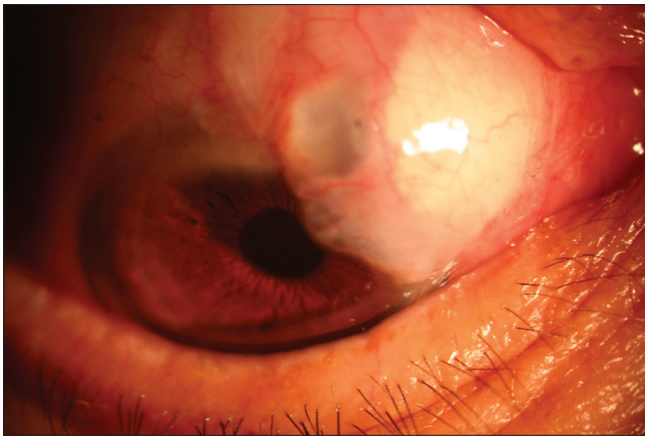


Figure 5. Slit lamp photograph one day after argon laser therapy.

Snellen acuity). Choroidal folds were markedly reduced.

One month later, a small bleb re-appeared adjacent to the scleral patch graft and UCDVA dropped to 1.2 Log MAR (20/320 Snellen acuity). IOP was 2 mmHg; however, Seidel's test demonstrated no leakage over the bleb. Faint wrinkling was obvious on fundus examination. Regarding the good condition of the overlying conjunctiva and low-lying nature of the bleb, argon laser was applied to induce scarring and reduction of bleb size. The procedure was highly effective [Figure 5] and after one week IOP was increased to 8 mmHg, UCDVA improved to 0.3 LogMAR (20/40, Snellen acuity), and choroidal folds were reduced markedly. Repeat OCT evaluation confirmed the reduction in macular thickness [Figure 6]. The clinical features remained stable through all other visits until final follow-up, 4 months after initial presentation.

DISCUSSION

We believe that in the patient presented herein, the leading cause of scleral melting, subconjunctival leakage, bleb formation and hypotony was excessive use of MMC 0.02% intraoperatively;^[1,2] however, details of the previous surgical procedure were not available.

As there were no other cases comparable to the present case, scleral patch grafting was performed to reinforce the site of inadvertent scleral fistulization.^[3] However, this procedure failed to completely resolve the situation due to the large size of the iatrogenic bleb. Thus we complemented treatment with argon laser treatment,^[4-7] and this combination therapy^[8,9] succeeded in managing the condition.

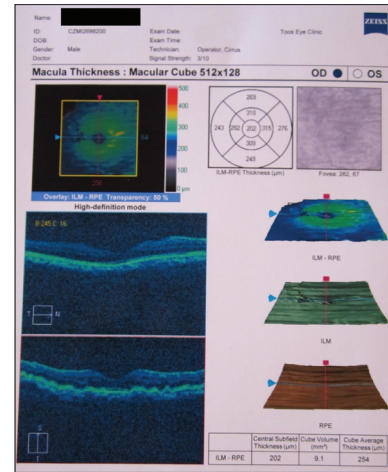


Figure 6. Last follow-up optical coherence tomography image (one week after argon-laser therapy) shows reduction of macular folds and edema.

Financial Support and Sponsorship

Nil.

Conflicts of Interest

There are no conflicts of interest.

REFERENCES

- Shi WY, Wang FH. Mitomycin C related complications shouldn't be neglected in the pterygium surgery. *Zhonghua Yan Ke Za Zhi* 2013;49:869-872.
- Doshi RR, Harocopos GJ, Schwab IR, Cunningham ET Jr. The spectrum of postoperative scleral necrosis. *Surv Ophthalmol* 2013;58:620-633.
- Harizman N, Ben-Cnaan R, Goldenfeld M, Levkovitch-Verbin H, Melamed S. Donor scleral patch for treating hypotony due to leaking and/or overfiltering blebs. *J Glaucoma* 2005;14:492-496.
- Akova YA, Dursun D, Aydin P, Akbatur H, Duman S. Management of hypotony maculopathy and a large filtering bleb after trabeculectomy with mitomycin C: Success with argon laser therapy. *Ophthalmic Surg Lasers* 2000;31:491-494.
- Amini H, Razeghinejad MR, Ghaffary E, Abdollahi A. Effect of diode laser application with G-probe on ocular hypotony after trabeculectomy with mitomycin-C. *Photomed Laser Surg* 2006;24:741-744.
- Fink AJ, Boys-Smith JW, Brear R. Management of large filtering blebs with the argon laser. *Am J Ophthalmol* 1986;101:695-699.
- Kahook MY, Schuman JS, Noecker RJ. Trypan blue-assisted neodymium: YAG laser treatment for overfiltering bleb. *J Cataract Refract Surg* 2006;32:1089-1090.
- Haynes WL, Alward WL. Combination of autologous blood injection and bleb compression sutures to treat hypotony maculopathy. *J Glaucoma* 1999;8:384-387.
- Hyung SM, Choi MY, Kang SW. Management of chronic hypotony following trabeculectomy with mitomycin C. *Korean J Ophthalmol* 1997;11:15-24.